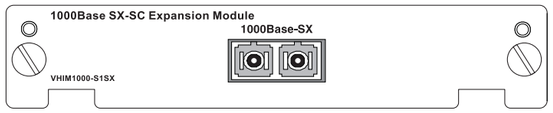
VERTICAL HORIZON GIGABIT ETHERNET SWITCH MODULE

1000BASE SX-SC GIGABIT ETHERNET SWITCH MODULE

Enterasys VHIM1000-S1SX 1000Base SX-SC Gigabit Ethernet Switch Module provides a short-wavelength (850 nm) Gigabit port that can be used for a high-speed backbone or server connections. It contains one 1000Base-SX port that can be connected to a site up to 550 m (1805 ft) away with fiber cable.



Gigabit Port LEDs

Port LEDs for the module are located on the front panel of the switch. These LEDs provide port status for “at-a-glance” network monitoring. The following table details the indicator functions provided by the VH-2402S:

Expansion Module LEDs		
LEDs	**Condition**	**Status**
Link	On	A valid link has been established on the port.
	Flashing	Port has been manually disabled, or partitioned by the system due to excessive errors.
Status	On	A module is installed in this slot.
Activity	Flashing	Traffic is passing through the port.

INSTALLING THE MODULE

CAUTION: The Uplink is designed to be used with the Vertical Horizon Series products only. Do not try to install this module in any other units.

Be sure to install the VHIM1000-S1SX module into the appropriate slot on the switch. Refer to the product Installation Guide for detailed information.

Equipment Checklist

After unpacking the VHIM1000-S1SX Switch Module, check the contents of the box to be sure you’ve received the following items:

- One VHIM1000-S1SX Switch Module
- This document

Handling the Module

CAUTION: The VHIM1000-S1SX Switch Module can easily be damaged by electrostatic discharge.

To prevent electrostatic damage, observe the following guidelines:

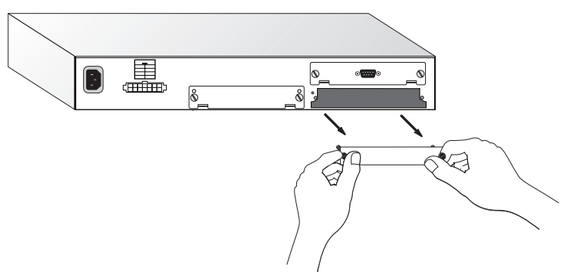
- Do not remove the module from its packaging until you are ready to install it.
- Do not touch any of the module’s pins, connectors or components.
- Hold the module only by its edges or front panel.
- Wear an anti-static wristband connected to a suitable earth ground whenever handling the module.
- Store or transport this module only in appropriate anti-static packaging.

Instructions

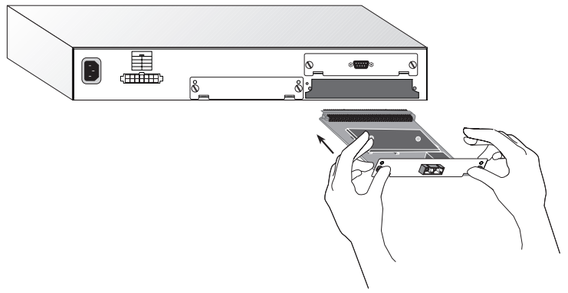
CAUTION: The switch must be powered off before installing or replacing any module.

1. **Power off the switch:** Disconnect the AC power cord from the switch. If a redundant power unit (RPU) is present, disconnect its DC cable connection to the switch.
2. **Remove network cables:** If you are replacing a module, remove the cable attached to the port on the module.
3. **Loosen the screws on the installed module or slot faceplate:** Using your fingers or a flathead screwdriver, turn the screws securing the module (or faceplate on the slot) in a counter-clockwise direction until they are free of the chassis. Be sure not to completely remove the screws from the module or faceplate.
4. **Remove the installed module or faceplate:** Firmly pull on the screws until the module is free of the switch. Carefully slide the module straight out of the slot.

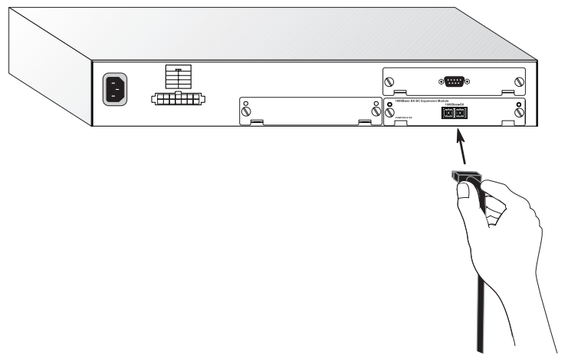
   Keep the original faceplate for future use. If you should remove the module, replace the faceplate to prevent dust and debris from entering the unit and to maintain proper air flow.



5. **Insert the new module into the switch:** Holding the new module with the text on the front panel upright, carefully slide the module into the switch slot and press gently until it snaps into place. Be sure the new module’s front panel is flush with the switch panel.



6. **Secure the new module:** Secure the new module in place by screwing the attached screws clockwise into the switch’s chassis. Tighten them enough to secure the module, but not so tight as to prevent them from being unscrewed by hand.
7. **Connect the network cable:** Connect fiber cable to the port on the newly installed module. See “Connectivity Guidelines” in this guide for further information.



8. **Power on the switch:** Reconnect the previously removed power sources to the switch. The switch’s front-panel LEDs should indicate the status of the new connection. Check the LED indicators for the fiber port to ensure that they are operating correctly. Refer to the table of LEDs in this guide for a description of the LED indications. If the module does not respond, see “Troubleshooting” below.

More details concerning connection options and network applications can be found in the product’s Installation Guide. Information on the module’s configuration options can be found in the Management Guide that is included with the base unit.

TROUBLESHOOTING

If you experience any problems with the module, check the following items before contacting Enterasys Technical Support:

- Ensure the switch with the Gigabit Switch Module is powered up.
- Ensure that the device attached to the module is powered up and operating correctly.
- Ensure that the module is properly seated in the slot.
- Verify that the attached device is configured to match the communication mode used by the module (1 Gbps, and half or full duplex).
- Check the connectors on both ends of the cable to be sure they are properly engaged. When attaching fiber cable to an SC-type port, be sure the plug clicks into place to ensure that it is properly seated.
- Be sure the fiber terminators are clean. You can clean the cable plugs by wiping them gently with a clean tissue or cotton ball moistened with a little ethanol. Dirty fiber terminators on fiber optic cables will impair the quality of the light transmitted through the cable.

ENTERASYS NETWORKS™

9033636

QUICK INSTALLATION GUIDE

VHIM1000-S1SX
1000BASE SX-SC
GIGABIT ETHERNET
SWITCH MODULE

Only qualified personnel should perform installation procedures.

NOTICE

Enterasys Networks reserves the right to make changes in specifications and other information contained in this document without prior notice. The reader should in all cases consult Enterasys Networks to determine whether any such changes have been made.

The hardware, firmware, or software described in this manual is subject to change without notice.

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FCC NOTICE

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment uses, generates, and can radiate radio frequency energy and if not installed in accordance with the operator's manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause interference in which case the user will be required to correct the interference at his own expense.

WARNING: Changes or modifications made to this device which are not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

INDUSTRY CANADA NOTICE

This digital apparatus does not exceed the Class A limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la class A prescrites dans le Règlement sur le brouillage radioélectrique édicté par le ministère des Communications du Canada.

VCCI NOTICE

この装置は、情報処理装置等電波障害自主規制協議会（ＶＣＣＩ）の基準に基づくクラスＡ情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。

EC CONFORMANCE DECLARATION

European contact: Enterasys Networks Limited
Nexus House, Newbury Business Park
London Road, Newbury
Berkshire RG13 2PZ, England

This information technology product complies with ISO/IEC Guide 22 and EN45014. It conforms to the following specifications:

EN55022(1988)/CISPR-22(1985) Class A
EN50082-1: IEC 1000-4-2, 3, 4, 6

This information technology product complies with the requirements of the Low Voltage Directive 73/23/EEC and the EMC Directive 89/336/EEC and carries the CE Mark accordingly.

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SAFETY WARNING

Before installing or removing the VHIM1000-S1SX, first disconnect the switch from the main power supply. For full safety instructions, please refer to the user guide that accompanies the switch.

Warning:
Optical Safety for
Fiber Optic Modules

CLASS I
LASER DEVICE

When using a fiber optic media expansion module, never look at the transmit laser while it is powered on. Also, never look directly at the fiber TX port and fiber cable ends when they are powered on.

Avertissment:
Ports pour fibres optiques -
sécurité sur le plan optique

DISPOSITIF LASER
DE CLASSE I

Ne regardez jamais le laser tant qu'il est sous tension.
Ne regardez jamais directement le port TX (Transmission) à fibres optiques et les embouts de câbles à fibres optiques tant qu'ils sont sous tension.

Warnhinweis:
Faseroptikanschlüsse -
Optische Sicherheit

LASERGERÄT
DER KLASSE I

Niemals ein Übertragungslaser betrachten, während dieses eingeschaltet ist. Niemals direkt auf den Faser-TX-Anschluß und auf die Faserkabelenden schauen, während diese eingeschaltet sind.

SPECIFICATIONS

Ports
1 1000Base-SX

Communication Mode
Half or full duplex,
auto-negotiation for duplex mode and flow control

Network Interface
SC connector, 850 nm short-wavelength transceiver
62.5/125 or 50/125 micron multimode fiber cable

Switch Method
Store-and-forward

Queue Buffer
2 Mbytes

Size
4.82 x 3.57 x 1.08 in.
(12.25 x 90.70.5 x 2.74 cm)

Power Consumption
2.4W maximum

Temperature
Operating: 32° to 122° F (0° to 50° C)
Storage: -40° to 158° F (-40° to 70° C)

Humidity
Operating: 5% to 95%

Compliances
CE Mark
Emissions
FCC Class A
EN55022 (CISPR 22) Class A
VCCI Class A
C-Tick
Immunity
IEC 1000-4-2/3/4/6

Standards
802.3z Gigabit Ethernet
ISO/IEC 8802-3

CONNECTIVITY GUIDELINES

Cable Types and Specifications

Cable	Type	Max. Length	Connector
10Base-T	Cat. 3, 4, 5 100-ohm UTP	100 m (328 ft.)	RJ-45
100Base-TX	Cat. 5 100-ohm UTP	100 m (328 ft.)	RJ-45
100Base-FX	50/125 or 62.5/125 micron core multimode fiber		
	Half duplex	412 m (1,351.4 ft.)	SC or ST
	Full duplex	2 km (1.24 miles)	SC or ST
	10/125 single-mode fiber	5 km (16,404 ft)	SC or ST
1000Base-SX	50/125 or 62.5/125 micron core multimode fiber	See the following table	SC or ST
1000Base-LX	MMF or SMF	See the following table	SC or ST

1000Base-SX Fiber Specifications

Fiber Diameter	Modal Bandwidth	Range
62.5/125 micron	160 MHz/km	7-722 ft (2-220 m)
	200 MHz/km	7-902 ft (2-275 m)
50/125 micron	400 MHz/km	7-1641 ft (2-500 m)
	500 MHz/km	7-1805 ft (2-550 m)

1000Base-LX Fiber Specifications

Fiber Diameter	Modal Bandwidth	Range
62.5/125 MMF	500 MHz/km	2 - 550 m (7 - 1805 ft)
50/125 MMF	400 MHz/km	2 - 550 m (7 - 1805 ft)
	500 MHz/km	2 - 550 m (7 - 1805 ft)
10/125 SMF	N/A	2 m - 5 km (7 - 16,404 ft)

Maximum Fast Ethernet Network Diameter

Repeater Type and Number	Twisted Pair 100BASE-TX	Twisted Pair/Fiber 100BASE-TX and FX
1 Class I	200 m (656 ft)	260.8 m (855.4 ft)
1 Class II	200 m (656 ft)	308.8 m (1012.6 ft)
2 Class II	205 m (672.4 ft)	216.2 m (709.1 ft)

Note: Network diameter is defined as the wire distance between two end stations in the same collision domain.